Final

Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision

Submitted to

Former McClellan Air Force Base
Air Force Real Property Agency

July 2009

Contents

Figures

Acronyms and Abbreviations

µg/L	microgram(s) per liter
AFRPA	Air Force Real Property Agency
AR	Administrative Record
ARARs	applicable or relevant and appropriate requirements
Cal/EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
COC	contaminant of concern
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
GWOU	Groundwater Operable Unit
HHRS	human health risk screening
HI	hazard index
MCL	maximum contaminant level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
non-VOC	non-volatile organic compound
OU	operable unit
PCE	tetrachloroethene
ppb	part per billion
PRG	preliminary remediation goal
PRL	Potential Release Location
RBC	risk-based concentration
RfD	reference dose
RI/FS	remedial investigation/feasibility study

ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act of 1986
SVE	soil vapor extraction
TCE	trichloroethene
VOC	volatile organic compound
WQL	Water Quality Limit

SECTION 1

Declaration

1.1 Site Name and Location

Department of the Air Force
Air Force Real Property Agency
Former McClellan Air Force Base
McClellan, CA 95652
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Identification Number: CA4570024337

1.2 Statement of Basis and Purpose

The Non-Volatile Organic Compound (Non-VOC) Amendment to the Basewide Volatile Organic Compound (VOC) Groundwater Record of Decision (ROD) amends the Basewide VOC Groundwater ROD signed in August 2007 and presents the Selected Remedy for non-VOCs in groundwater at the former McClellan Air Force Base (McClellan or base) in Sacramento, California. Non-VOCs include semivolatile organic compounds (including pesticides, herbicides, and polynuclear aromatic hydrocarbons), metals, petroleum hydrocarbons, perchlorate, and radionuclides. Of these, only total chromium; hexavalent chromium; 1,4-dioxane; and perchlorate were identified as non-VOC contaminants of concern (COCs) for groundwater. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA, 42 United States Code Section 9601-9675), and with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 Code of Federal Regulations [CFR] Part 300). The decisions documented herein are based on information contained in the Administrative Record (AR) file, which is available for review at McClellan. The Air Force and the United States Environmental Protection Agency (EPA) Region 9 jointly selected the remedy in consultation with the State of California. The ROD Amendment will become part of the Administrative Record file (NCP §300.825(a)(2)).

This ROD Amendment addresses remedial actions for non-VOC contamination in the Groundwater Operable Unit (GWOU), including all portions of the non-VOC groundwater contaminant plumes above the cleanup levels, regardless of whether they are located within or outside the former base boundaries. The remedial action addresses the four non-VOC COCs: total chromium including hexavalent chromium; perchlorate; and 1,4-dioxane. This ROD Amendment is supported by the Remedial Investigation/Feasibility Study (RI/FS) for Non-VOCs in Groundwater (CH2M HILL, 2008).

1.3 Assessment of Site

The response action selected in this ROD Amendment—groundwater extraction and treatment, installation of an extraction well at Potential Release Location (PRL) S-008, institutional controls, and monitoring—is necessary to protect public health or welfare or the environment from actual releases of hazardous substances resulting from industrial operations at McClellan. The groundwater is currently being remediated using groundwater extraction and treatment under the Basewide VOC Groundwater ROD. Contaminated groundwater from McClellan is not being used as a source of drinking water.

1.4 Description of Selected Remedy

The Selected Remedy for non-VOC groundwater contamination at McClellan is Alternative 2 as described in the Non-VOC RI/FS (CH2M HILL, 2008) and the Non-VOC Proposed Plan (Air Force Real Property Agency [AFRPA], 2008). The remedy includes operation of the existing groundwater extraction and treatment system, installation of an extraction well at PRL S-008, institutional controls, and monitoring.

Under the Selected Remedy, the existing groundwater extraction and treatment system operating to address VOCs per the Basewide VOC Groundwater ROD will be applied to meet remedial goals for non-VOCs. An additional extraction well will be installed at PRL S-008 (a former plating shop) and added to the extraction well network to remove groundwater until cleanup of hexavalent chromium and VOCs is achieved at that site. An ion exchange system is in place to reduce hexavalent chromium concentrations; treatment of hexavalent chromium will continue under the Selected Remedy as necessary to achieve surface water discharge effluent limitations. No active treatment for perchlorate or 1,4-dioxane will be added to the system at this time.

As part of the Selected Remedy, treated water is discharged to surface water. Discharge requirement for hexavalent chromium is now 11 micrograms per liter (µg/L). As specified for effluent limitations (Table 3 of Appendix G) in the Operation and Maintenance Manual for the Groundwater Treatment Plant (URS 2009). The discharge standard for hexavalent chromium established in the VOC ROD was 14.1 parts per billion (ppb). In the future, some portion of the treated water may be used with approval of the regulatory agencies for industrial purposes and landscape irrigation at McClellan. Future discharge requirements and effluent concentrations from the treatment plant may change, resulting in the Air Force applying additional treatment processes or adjusting pumping rates to achieve the new requirements. The regulatory agencies will be included in any changed remedy decisions. Based on the current influent concentrations there are no discharge standards for perchlorate nor 1,4-dioxane.

The Selected Remedy also includes institutional controls initially established in the VOC ROD, which remain unchanged. These institutional controls, described in detail in Section 2.11.3 of the VOC ROD, are designed to prevent human exposure to non-VOCs at concentrations above cleanup levels and to protect the integrity of the remedial systems and associated monitoring systems. Groundwater use prohibition zones were created downgradient of the base, and residents were connected to municipal water supplies in the

1980s. A 2,000-foot consultation zone was created around the contaminant plumes to trigger a review well application permits.

The cleanup levels for total chromium including hexavalent chromium (50 ppb) and perchlorate (6 ppb) are based on maximum contaminant levels (MCLs). The cleanup level for 1,4-dioxane (6.1 ppb) is a risk-based value as no MCL has been established for this contaminant.

Contaminant	Cleanup Levels (ppb)
Hexavalent chromium	50
Perchlorate	6
1,4-Dioxane	6.1

The Air Force will monitor the non-VOC groundwater plumes and COCs throughout the remediation process in accordance with an updated Groundwater Treatment Plant Operation and Maintenance Manual (URS, 2009).

This remedy was selected because it will clean up the non-VOC groundwater plumes and because it minimizes residual risk. The Selected Remedy provides the best approach for cost-effective risk reduction.

1.5 Statutory Determinations

The Selected Remedy – groundwater extraction and treatment, installation of an extraction well at PRL S-008, institutional controls, and monitoring – is protective of human health and the environment; complies with federal and state applicable or relevant and appropriate requirements (ARARs) for the remedial action; is cost-effective; and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. The extracted groundwater is currently treated using air stripping for VOCs and ion exchange for hexavalent chromium. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (that is, reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through extraction and treatment).

Because this remedy will result in hazardous substances remaining onsite above levels that allow for unrestricted use and unrestricted exposure, a statutory 5-year review will be conducted in 2009 (triggered by the Interim ROD start date) and every 5 years after, until the ROD Amendment cleanup levels have been achieved, to ensure that the remedy is, or will be, protective of human health and the environment.

The State concurs with the selected remedial technology in the ROD, but supports the selection of Alternative 3 presented in the RI/FS (see Section 2.10).

1.6 Public Participation

This ROD Amendment was prepared in accordance with EPA specifications outlined in *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents* (EPA, 1999). A Proposed Plan was drafted and reviewed by Air Force and regulatory agency staff. The final Proposed Plan was presented to the public during a public meeting held on December 9, 2008, and was available for public review between November 24, 2008 and January 7, 2009. Community input on the Proposed Plan was solicited during this timeframe in accordance with guidance (NCP §300.435(c)(2)(ii)). The results of the public participation activities are included in Section 3 of this ROD Amendment.

1.7 Data Certification Checklist

The following information is included in this ROD Amendment:

- COCs (Table 2-2)
- Current and reasonably anticipated future land use assumptions (Section 2.1)
- Cleanup levels established for COCs and the basis for these levels (Table 2-3)
- Potential exposure pathways and total risk (Table 2-3)
- Estimated remedy costs and the number of years over which the remedy costs are projected (Section 2.7)
- Key factors that led to the selection of the remedy (Sections 2.8, 2.9, and 2.10)

Additional information can be found in the AR file for this site.

1.8 Authorizing Signatures

This is the signature sheet for the McClellan Non-VOC Groundwater ROD Amendment. The Air Force and EPA jointly selected the remedies described in this ROD Amendment.

for

ROBERT MOORE
Director, Air Force Real Property Agency
U.S. Air Force

AUG 18 2009
Date

MICHAEL M. MONTGOMERY
Assistant Director, Federal Facilities and Site
Cleanup Branch
Region IX, U.S. Environmental Protection Agency

August 31, 2009
Date

The Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) (the State) had an opportunity to review and comment on the Non-VOC Amendment to the Basewide VOC Groundwater ROD, and State concerns have been addressed.

CHARLES RIDENOUR, P.E.
Supervising Hazardous Substances Engineer I
Brownfields and Environmental Restoration
Program
Department of Toxic Substances Control
California Environmental Protection Agency

9-10-09
Date

SECTION 2

Decision Summary

2.1 Site Name and Location

McClellan is located in Sacramento County, 7 miles northeast of downtown Sacramento, California. It comprises approximately 3,000 acres and is bounded by the City of Sacramento on the west and southwest, and the unincorporated areas of Antelope on the north, Rio Linda on the northwest, and North Highlands on the east. A location map is shown on Figure 2-1.

The predominant current land uses at McClellan are aviation, industrial, commercial, and residential. There are also open space areas, the largest of which is the West Nature Area. Current and proposed land uses at McClellan do not differ significantly from the uses of the property by the Air Force while McClellan was an active military installation.

2.2 Site Characteristics and Site History

Founded in 1936, McClellan was an aircraft repair depot and supply base. McClellan's mission was to provide logistics and maintenance support for aircraft, communications, and electronic systems. During operation, the Air Force used a wide range of toxic and hazardous chemicals at McClellan. These chemicals were mostly industrial solvents and cleaners, aviation fuels, and a variety of oils and lubricants. There were also several plating shops operating at the base.

The Air Force put chemical wastes in disposal pits and landfills on base. Past disposal practices, spills, releases, and leaking tanks and pipelines resulted in soil and groundwater contamination at McClellan. The groundwater is contaminated with VOCs and non-VOCs.

2.3 Brief History of Remedial Activities

Since 1979, McClellan has been investigating environmental contamination resulting from past waste management and disposal practices. For non-VOCs in groundwater, investigations began in 1997, and the *Preliminary Assessment for Non-VOCs in Groundwater* was completed in 2005 (URS, 2005). The *Site Inspection Findings Report and Remedial Investigation Work Plan for Non-VOCs in Groundwater* was completed in 2007 (CH2M HILL, 2007b). The Non-VOC RI/FS was completed in 2008 (CH2M HILL, 2008). As part of the RI, the Air Force installed additional monitoring wells to fill data gaps and implemented a monitoring plan to collect non-VOC data from existing wells in conjunction with the Groundwater Monitoring Program (CH2M HILL, 2008). The results indicated several areas of groundwater with non-VOCs at concentrations above the cleanup levels. Table 2-1 provides identification for each of the Non-VOC plumes shown on Figure 2-2 and the maximum concentration of the non-VOC COC detected.

TABLE 2-1
List of Non-VOC Plumes
Non-VOC Amendment to the Basewide VOC Groundwater ROD, Former McClellan Air Force Base, Sacramento, California

Plume Reference on Figure 2-2	Plume	Analyte	Maximum Detected Concentration (µg/L)
A	MW-355	Hexavalent chromium	100
		1,4-Dioxane	1.3
B	PRL S-008	Hexavalent chromium	120
		1,4-Dioxane	2.8
C	CS 047	Hexavalent chromium	390
		1,4-Dioxane	2.2
		Perchlorate	1.8
D	PZ-737	Hexavalent chromium	87
		1,4-Dioxane	6.8
		Perchlorate	0.41
E	OU A East	1,4-Dioxane	17
		Perchlorate	1.3
F	OU A West	1,4-Dioxane	18
G	OU B/C East	1,4-Dioxane	11
H	OU B	1,4-Dioxane	7.6
		Perchlorate	2.1
I	OU C West	1,4-Dioxane	8
J	OU C Central	1,4-Dioxane	18
K	OU C South	1,4-Dioxane	12
L	OU C/B West	1,4-Dioxane	10
		Hexavalent chromium	19
M	OU D	1,4-Dioxane	190
		Hexavalent chromium	14
N	SA 002/CS 030	Perchlorate	11
O	OU C	Perchlorate	88

Note: Plume evaluation in the RI/FS is based on data collected through 2007.

The existing groundwater extraction and treatment system used to remediate VOCs has been in operation since 1987 and was expanded in three phases to achieve the objectives of the 1995 Groundwater Operable Unit Interim ROD. Soil vapor extraction systems were installed as removal actions to address VOCs in the vadose zone that could potentially migrate to groundwater and prolong the groundwater cleanup process. Site-specific

processes (START/STOP, provided in Attachment 2 to the VOC ROD) are used to determine whether to install or discontinue operation of an SVE system. The treatment system was modified under a time-critical removal action to address hexavalent chromium in 2003 by the installation of an ion exchange system designed to meet the system's discharge requirement.

One groundwater treatment plant and approximately 99 extraction wells are currently operational and are pumping and treating groundwater contaminated with VOCs and non-VOCs.

2.4 VOC ROD Summary and Basis for the Non-VOC ROD Amendment

The Basewide VOC Groundwater ROD, signed in August 2007, addressed 13 VOC COCs: 1,2-dibromoethane; 1,1-dichloroethane; 1,1-dichloroethene; 1,2-dichloroethane; 1,1,2-trichloroethane; benzene; carbon tetrachloride; chloroform ; cis-1,2-dichloroethene; methylene chloride; tetrachloroethene (PCE); trichloroethene (TCE); and vinyl chloride. The substantive requirements for treatment plant discharge specified in the VOC Groundwater ROD were updated in January 2009 when the Operation and Maintenance Manual for the Groundwater Treatment Plant Table 5 was revised.

The Selected Remedy, Alternative 2B, included four cleanup actions: groundwater pump and treat, soil vapor extraction (SVE), institutional controls, and monitoring. Under this alternative, the Air Force plans to aggressively contain and clean up the VOC groundwater plumes to MCLs.

The Selected Remedy in the Basewide VOC Groundwater ROD includes groundwater extraction and treatment, SVE, institutional controls, and monitoring. The Air Force will contain and clean up TCE and other VOCs to MCLs. In accordance with the 2001 Dispute Resolution (Attachment 1A to the VOC ROD), the VOC ROD provides that when the TCE level of 5 ppb is achieved in each plume, as defined by the BRAC cleanup team, the Air Force, in collaboration with the State and EPA Remedial Project Managers, will complete an analysis and prepare a report (using agreed-upon models) that evaluates the technical and economic feasibility of continuing remediation until plume levels reach 2.3 ppb TCE. If an agreement to continue extraction and treatment of groundwater cannot be reached, the Air Force may shut off the wells and any party may use the dispute resolution provisions of the FFA.

Non-VOC investigations identified several new plumes. As shown on Figure 2-2, the 1,4-dioxane plumes make up the largest areal extent of the non-VOC plumes. There are also two small perchlorate plumes and four smaller hexavalent chromium plumes. As shown on Figure 2-2, the non-VOC plumes are contained within the VOC plumes with the exception of plumes B and I. The non-VOC plumes are also significantly smaller than the VOC plumes. The two perchlorate plumes are indentified as plumes N and O. The hexavalent chromium plumes shown as plumes A, B, C, and D on Figure 2-2 and in Table 2-1 are small in volume, are relatively immobile, and consequently have a low probability of having a completed receptor pathway.

During the Non-VOC RI/FS, the Air Force determined that most of the non-VOC contamination in groundwater was within the existing VOC groundwater plume boundaries and was already under remediation. Two small plumes, the Operable Unit (OU) C West Plume (1,4-dioxane) and the hexavalent chromium plume at PRL S-008, are located outside an existing VOC plume. Data suggest the OU C plume is under the hydraulic control of onbase extractions wells and within the acceptable human health risk range. This assessment was discussed in Sections 2.3.14 and 2.4.6.2 of the RI/FS for Non-VOCs in Groundwater (CH2M HILL, 2008).

The OU C West plume will be monitored, and if 1,4-dioxane concentrations increase to a level exceeding the EPA risk management range (10^{-6} to 10^{-4}), then treatment of this plume will be evaluated. Also, in the future, treatment plant discharge requirements for 1,4-dioxane (or perchlorate) may change, resulting in the Air Force, in coordination with signatories to this document, altering the proposed remedy to meet the new discharge objectives.

The four hexavalent chromium plumes are 0.23 acre for plume A, 1.55 acres for plume B, 1.46 for plume C, and 0.038 for plume D and they occupy only the A monitoring zone which is 20 to 35 feet deep. Plumes A and D are small enough to be defined by a single monitoring well or piezometer. Plume C extends less than 100 feet downgradient from the former plating shop and plume B, probably terminates far short of the monitoring wells 500 feet downgradient where background concentrations are measured. Consequently, they all have a small volume and contain a very small contaminant mass.

Focused sampling programs have failed to identify any remaining vadose zone source of hexavalent chromium. In spite of this, the plumes are persistent and show little migration even though hexavalent chromium is highly mobile and the plumes are at least 20 years old. Low extraction well production rates and concentrations suggest that the plumes are entrapped in very low permeability structures within the more permeable aquifer matrix.

Plumes C and B each contain a low yield hexavalent chromium extraction well that produces no more than 2 gpm. The low production can be attributed to the lithology containing these plumes, which is impermeable to the extent that it cannot support a sustainable drinking water supply. The two other single-well hexavalent plumes, A and D, have extraction wells screened in the same depth interval and within 100 feet of the wells defining the plumes. In the process of extracting groundwater from the low permeability lithology where high levels of hexavalent chromium are measured, uncontaminated groundwater is pulled from the surrounding higher permeability aquifer matrix, causing low hexavalent chromium concentrations in the extraction wells, which are not representative of plume concentrations.

The low mass and small areal extent of the hexavalent chromium plumes located within the low permeability soil combine to make it highly unlikely that there would be a completed exposure pathway even if the current VOC extraction system was abandoned or a water production well were installed.

The Air Force concluded that the Basewide VOC Groundwater ROD could be amended to include non-VOCs in the groundwater, using the existing systems with the installation of an additional extraction well at PRL S-008. The existing groundwater pump-and-treat system

remediating VOCs in groundwater could simultaneously remediate the non-VOC plumes. Because the extent and concentration of the VOC plume are much greater than the non-VOC contaminant plume, it is likely that the non-VOC plume will be cleaned up before the VOC plume is cleaned up.

Table 2-2 presents a comparison of the original VOC ROD to the Non-VOC ROD Amendment. The addition of the extraction well at the PRL S-008 will not significantly increase the influent flow rate or hexavalent chromium concentration because of the limited amount of hexavalent chromium mass present and the expected low flow rate due to the low permeable soils.

The Air Force, as the lead agency, believes that the response action selected in this ROD Amendment meets the requirements for protecting human health and the environment from actual or threatened releases of hazardous substances from these sites.

TABLE 2-2
Comparison Table: VOC ROD and Non-VOC ROD Amendment
Non-VOC Amendment to the Basewide VOC Groundwater ROD, Former McClellan Air Force Base, Sacramento, California

	VOC ROD	Non-VOC ROD Amendment
COCs (and cleanup levels in parts per billion)	1,2-Dibromoethane (0.05) 1,1-Dichloroethane (5) 1,1-Dichloroethene (6) 1,2-Dichloroethane (0.5) 1,1,2-Trichloroethane (5) Benzene (1) Carbon tetrachloride (0.5) Chloroform (80) cis-1,2-Dichloroethene (6) Methylene chloride (5) PCE (5) TCE (5) Vinyl chloride (0.50)	Total chromium including hexavalent chromium (50, CA MCL) 1,4-Dioxane (6.1, Risk-based cleanup, US EPA Region 9 Tap Water PRG) Perchlorate (6, CA MCL)
Remedy	Groundwater pump and treat consisting of an air stripper for VOCs and ion exchange for hexavalent chromium. SVE Institutional controls Monitoring	Groundwater pump and treat with an additional extraction well at PRL S-008 (Building 243) to address a hexavalent chromium plume. No additional treatment technology will be added at this time Institutional controls Monitoring
Estimated time to complete	55 years	10 years

2.5 Summary of Risk Screening

A Human Health Risk Screening (HHRS) was conducted in 2008 to compare the non-VOC analytes in groundwater to risk-based concentrations (RBCs). The RBCs represent the more conservative of cancer and non-cancer risks and allow for simplified screening of analyte concentrations in groundwater. The RBCs are based on a target cancer risk of 1×10^{-6} (based on the conservative end of the EPA's risk range [10^{-6} to 10^{-4}]) or target non-cancer hazard index (HI) of 1 and represent the most conservative of these values. The HHRS estimates non-VOC risk in each plume by comparing the maximum concentration of each analyte above background against RBCs. Table 2-3 presents the cleanup levels for the COCs and the total risk associated with the maximum concentration detected for each COC.

TABLE 2-3
Cleanup Levels for COCs in Groundwater and Estimated Human Health Risks for Maximum Concentrations Detected
Non-VOC Amendment to the Basewide VOC Groundwater ROD, Former McClellan Air Force Base, Sacramento, California

Contaminant of Concern	Cleanup Level (µg/L)[a]	Maximum Reported Concentration (µg/L)[b]	Excess Lifetime Cancer Risk[c]	Noncancer Hazard Quotient[c]
Hexavalent chromium[d]	50	390	NA	8
1,4-Dioxane	6.1	190	3×10^{-5}	NA
Perchlorate	6	88	NA	8

[a]Cleanup levels presented in this table are either the State MCL or risk-based level for 1,4-dioxane.
[b]Maximum reported concentration from the first quarter 2006 through the first quarter 2007.
[c]The non-VOC plumes are generally commingled with the VOC plumes, which generate the majority of the human health risk.
[d]Total chromium is made up of trivalent and hexavalent chromium. At McClellan, the concentration of total chromium reported in groundwater is almost entirely hexavalent chromium.

Notes:

Estimated lifetime cancer risk and non-cancer hazard quotients were calculated using the assumptions presented in the Final OU A RICS (Jacobs, 2001). Potential exposure pathways include ingestion, inhalation, and dermal for human receptors.

NA = not applicable

2.6 Remedial Action Objectives

The Air Force has two remedial action objectives for this ROD Amendment. The first objective is to control and clean up groundwater with non-VOC COC concentrations in excess of cleanup levels and to prevent their migration. The COCs and their respective cleanup levels in ppb are total chromium including hexavalent chromium (50); 1,4-dioxane (6.1); and perchlorate (6).

The second objective is to protect human health and the environment from exposure to non-VOC contaminants in the groundwater by ensuring that groundwater in the McClellan plumes is not used for consumption. This is accomplished by existing institutional controls as specified in the VOC ROD. These existing institutional controls include enforceable use restrictions and state land use controls.

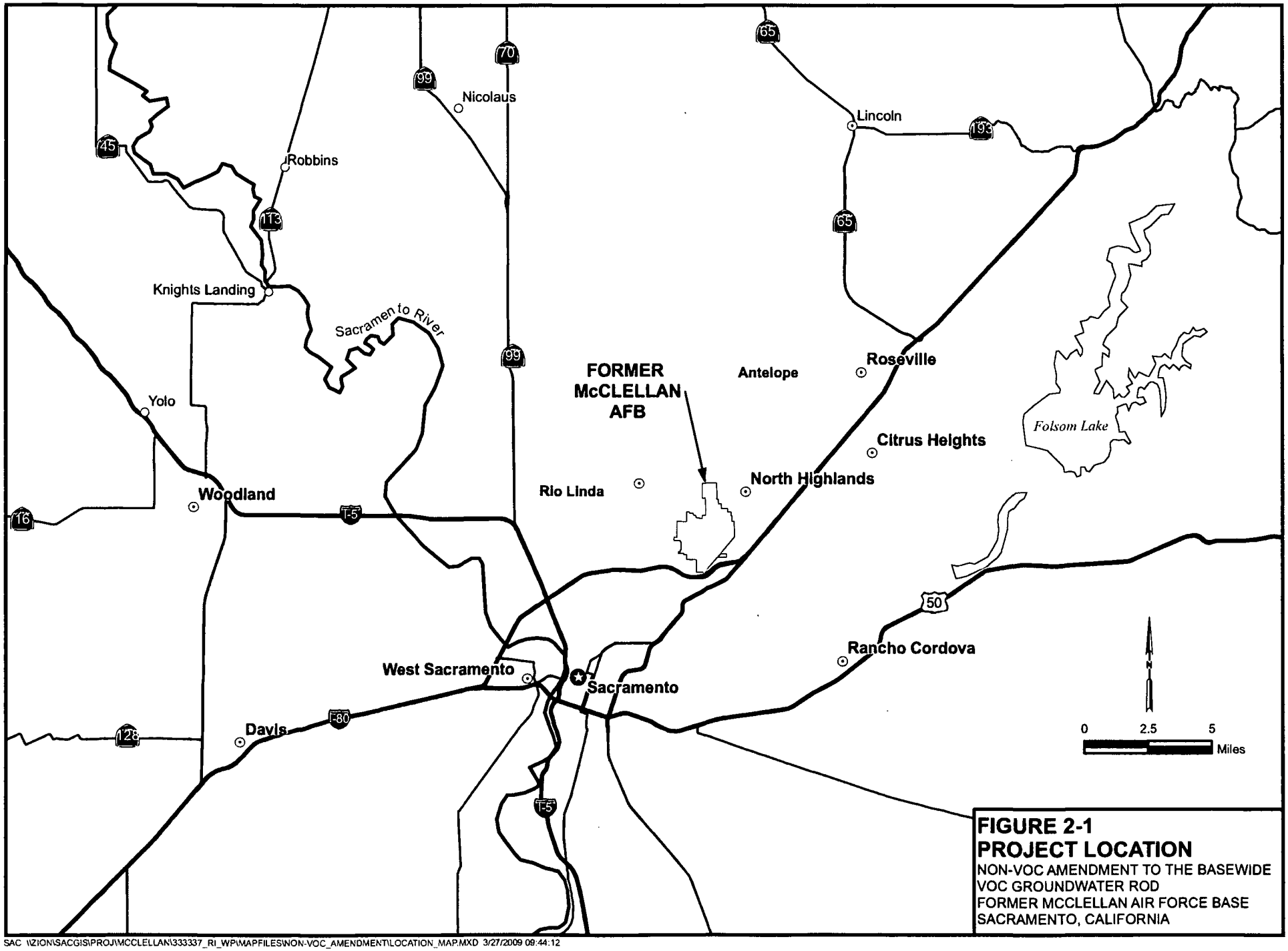

FIGURE 2-1
PROJECT LOCATION
NON-VOC AMENDMENT TO THE BASEWIDE
VOC GROUNDWATER ROD
FORMER MCCLELLAN AIR FORCE BASE
SACRAMENTO, CALIFORNIA

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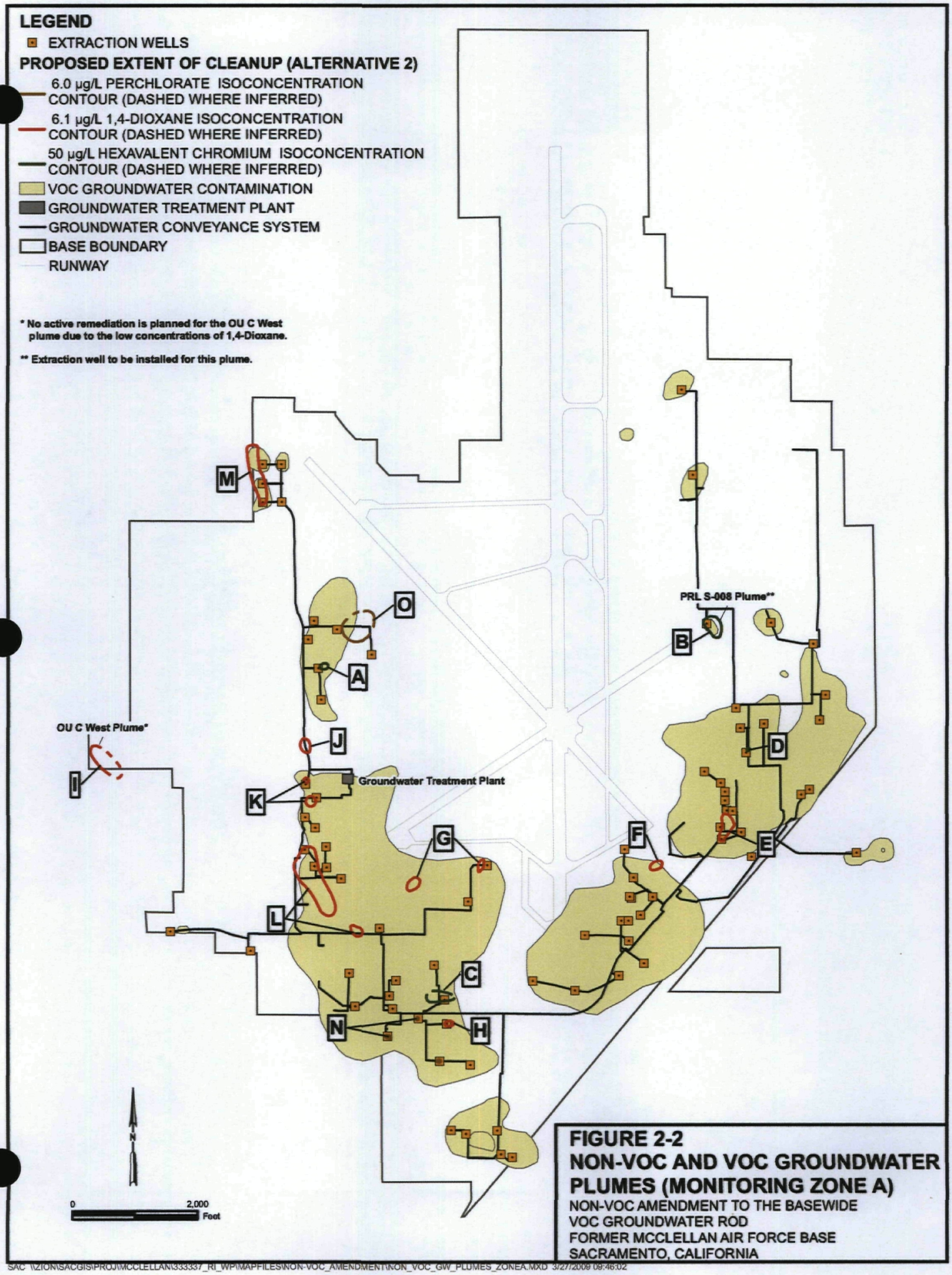

FIGURE 2-2
NON-VOC AND VOC GROUNDWATER PLUMES (MONITORING ZONE A)
NON-VOC AMENDMENT TO THE BASEWIDE VOC GROUNDWATER ROD
FORMER MCCLELLAN AIR FORCE BASE
SACRAMENTO, CALIFORNIA

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2.7 Description of Alternatives for Non-VOCs in Groundwater

The Air Force presented three Alternatives to the regulatory agencies and community for remediating non-VOCs in groundwater. Alternative 1, No Action, did not meet threshold criteria and was not considered.

Alternative 2 includes control and cleanup to MCLs or risk-based cleanup levels using the existing pump-and-treat system, installation of a new extraction well, institutional controls, and monitoring. The groundwater treatment system, currently remediating VOCs, will be used to cleanup non-VOCs as well. No additional treatment technology will be added for perchlorate or 1,4-dioxane. Computer modeling predicts a cleanup time of 10 years at a cost of $1.1 million to successfully implement this alternative and reduce the non-VOC COCs to their MCLs or risk-based cleanup goals. If cleanup is not achieved in 10 years, remediation and monitoring will continue. The cost includes the installation of one extraction well at PRL S-008, as well as monitoring, operations, and maintenance for 10 years. However, cleanup goals may not be met in 10 years and costs will occur until cleanup is achieved. The non-VOC cleanup costs are in addition to the VOC remedy costs.

Alternative 3 includes control and cleanup to WQLs using the existing pump-and-treat system, installation of a new extraction well, institutional controls, and monitoring. No additional treatment technology will be added for perchlorate or 1,4-dioxane. WQLs are lower than the cleanup levels for Alternative 2, meaning more non-VOCs must be removed from the groundwater. Computer modeling using the WQL threshold suggests a cleanup time of 20 years at a cost of $1.7 million to successfully implement this alternative and reduce the non-VOC COCs to their WQLs. The cost includes the installation of one extraction well at PRL S-008, as well as monitoring, operations, and maintenance for 20 years. The non-VOC cleanup costs are in addition to the VOC remedy costs. Because WQLs are much more stringent than MCLs, it is possible that the time to cleanup may exceed 20 years. However, this alternative results in a slightly higher level of protection.

Alternatives 2 and 3 are compliant with the ARARs in the VOC ROD. The action-specific and location-specific ARARs identified for the Non-VOC ROD are presented in Table 7A and Table 7B of the Basewide Groundwater VOC ROD.

2.8 Evaluation of Alternatives for Non-VOCs against the Nine CERCLA Criteria

Table 2-4 evaluates the alternatives for non-VOCs in groundwater against the nine CERCLA criteria. Alternative 1, No Action, is designed to establish a basis for comparison with other alternatives. This alternative does not meet the threshold criteria and was not considered further.

TABLE 2-4
Analysis of Alternatives for Non-VOCs in Groundwater
Non-VOC Amendment to the Basewide VOC Groundwater ROD, Former McClellan Air Force Base, Sacramento, California

Criteria	Alternative 1: No Action	Alternative 2: Containment and Cleanup to MCLs or PRGs/Monitoring/ Institutional Controls	Alternative 3: Containment and Cleanup to WQLs/Monitoring/ Institutional Controls
	Restricted Land Use	Restricted Land Use	Restricted Land Use
1. Protection of Human Health and Environment	No	Yes (good)	Yes (better)
2. Compliance with ARARs	Does not comply	Yes	Yes
3. Long-term Effectiveness and Permanence	Uncertain	Yes	Yes
4. Reduction in Toxicity, Mobility, and Volume	Not applicable	Yes (good)	Yes (better)
5. Cost[a]	Not applicable	$1,100,000 over 10 years	$1,700,000 over 20 years
6. Short-term Effectiveness	Not applicable	Yes	Yes
7. Implementability	Not applicable	Yes	Yes
8. State Acceptance	Not acceptable	TBD	TBD
9. Community Acceptance	Not acceptable	Yes	Yes

[a]The costs outlined in this table have not yet been expended. These costs include long-term monitoring and operations and maintenance costs.

Alternatives 2 and 3 share many similarities within the CERCLA criteria. Both alternatives protect human health and the environment; comply with ARARs; are effective in the short-term and long-term; are permanent; provide a reduction in toxicity, mobility, and volume; and are implementable. Both alternatives have institutional controls to protect human health and the environment by way of a groundwater prohibition use zone in the downgradient direction and a groundwater consultation area around the entire contaminant plume. The relatively small hexavalent chromium plumes are located within the former base boundary and are contained within low permeable soils. The low permeable soils result in low flow rates and make the groundwater at this depth unsuitable for high yield wells and use by water purveyors.

Alternatives 2 and 3 differ in cleanup levels of non-VOCs in groundwater, cost and time to complete, and monitoring timeframe. Alternative 2 sets the cleanup of COCs to MCLs or risk-based cleanup goals. Alternative 3 sets the cleanup of COCs to WQLs, which are the most stringent water quality criteria, requiring a more significant amount of time and money than Alternative 2.

As noted earlier, the small non-VOC plumes are mostly part of the larger VOC plumes. Since the extraction wells will continue to operate to clean up the VOC contamination for approximately 50 years, non-VOC concentrations will continue to decrease. The primary difference between Alternatives 2 and 3 is the cost of monitoring in Alternative 3, because

approximately the same concentration level will be attained regardless of the chosen alternative.

2.9 Selected Remedy for Non-VOCs

The Air Force, considering regulatory agency and community input, selected Alternative 2 as the cleanup remedy for non-VOCs in groundwater at McClellan. Alternative 2 uses the existing groundwater treatment system, and includes installation of one new extraction well, monitoring, and institutional controls to remediate non-VOCs in groundwater. An ion exchange system is in place to reduce hexavalent chromium concentrations; treatment of hexavalent chromium will continue under the Selected Remedy until cleanup levels are achieved. No active treatment for perchlorate or 1,4-dioxane will be added to the system at this time. Under this alternative, no active remediation is required for the OU C West plume, as concentrations are low and risks are within the CERCLA risk range. However, monitoring will continue, and if plume conditions change, additional monitoring and/or extraction wells may be installed in the future.

The selected remedy was based on the nature and extent of non-VOCs in groundwater, the feasibility of removing the non-VOCs, the lack of nearby receptors, and because the remedy is protective of human health and the environment. The limited likelihood of receptors provides additional basis to select Alternative 2 over Alternative 3.

Alternative 2 is cost-effective, meets the threshold criteria, and is protective of human health and the environment through the existing Prohibition Areas, Consultation Zones, and institutional controls. It will eliminate direct exposure to and treat groundwater contaminated with non-VOCs. Alternative 2 meets state and federal requirements. The Air Force will re-evaluate the remedies every 5 years to ensure they continue to be protective of human health and the environment.

2.10 Statutory Determinations

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs, are cost effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes. The Selected Remedy for non-VOCs meets the statutory requirements. ARARs for the VOC ROD also apply to this Non-VOC ROD Amendment. The Non-VOC ROD Amendment ARARs are presented in Section 2.12.2 of the VOC ROD, in Tables 7A and Table 7C, action-specific and location-specific, respectively. Chemical-specific ARARs for total chromium including hexavalent chromium and perchlorate are the California State MCLs.

The State supports the selection of Alternative 3 in the RI/FS that includes cleanup to State Water Quality Limits (WQLs) of 21 ppb for hexavalent chromium and 3.0 ppb for 1,4-dioxane in groundwater. The State concurs with the selected remedial technology in the

ROD, but not the ROD cleanup levels of 50 ppb for hexavalent chromium and 6.1 ppb for 1,4-dioxane.

Recent toxicity studies suggest that hexavalent chromium may pose a cancer risk from ingestion at levels well below the proposed cleanup level (California MCL) of 50 ppb for total chromium. Using the EPA-maintained Integrated Risk Information System (IRIS) reference dose (RfDs) for non-cancer health effects and the standard exposure scenario, the Central Valley Water Board has calculated a 21 µg/L (or ppb) RfD-based WQL for hexavalent chromium in drinking water. Cleanup to the WQL of 21 ppb for hexavalent chromium was evaluated in the Proposed Plan as Alternative 3.

The State asserts that background is the appropriate cleanup level for hexavalent chromium, based on State Water Resources Control Board Resolution 92-49 (Res. 92-49) Section III.G, Title 23 California Code of Regulations Section 2550.4, and Narrative Toxicity Objective for groundwater in Chapter III of the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (the "Basin Plan"). The RfD-based WQL of 21 ppb is reasonably close to the approximate background concentration of 16 ppb and acceptable to the State as the cleanup level for this action.

The State asserts that the proposed cleanup levels of 50 ppb for hexavalent chromium and 6.1 ppb for 1,4-dioxane do not comply with the narrative toxicity standard in the Basin Plan that requires cleanup below levels that pose a significant risk to human health and the environment. In selecting a numeric interpretation of the narrative toxicity standard, the Central Valley Water Board will give preference to health-based limits. Hexavalent chromium and 1,4-dioxane do not have established federal or state MCLs or Public Health Goals (PHGs), but do have health-based WQLs of 21 ppb (EPA IRIS Reference Dose as a Drinking Water Level) for hexavalent chromium and 3.0 ppb (Cal/EPA Cancer Potency Factor as a Drinking Water Level) for 1,4-dioxane.

The Air Force disagrees with the State's asserted basis for proposing the calculated WQLs for hexavalent chromium and 1,4-dioxane as the appropriate cleanup levels for this action. Accepting, for this discussion only, that Res. 92-49 Section III G/Section 2550.4 and the Narrative Toxicity Objective are relevant and appropriate State requirements, remedy selection is a matter for all the parties to the Federal Facilities Agreement (FFA).

If a selected remedy results in hazardous substances remaining at a site at levels above those suitable for unlimited use and unrestricted exposure, the NCP requires that the action be reviewed no less often than every 5 years. The Air Force will update the human health risk assessment for hexavalent chromium or 1,4-dioxane and evaluate the protectiveness of the remedy in the next five-year review, which will be accelerated if necessary to take prompt action on a threat to human health and the environment.[1] Upon meeting the ROD

[1] Current guidance for evaluating protectiveness in five-year reviews is found in OSWER No. 9355.7-03B-P, Comprehensive Five-Year Review Guidance, June 2001, Section 4.0 - Assessing the Protectiveness of the Remedy, including Appendix G - Methods and Examples for Evaluating Changes in Standards and Toxicity, and incorporated as part of the ROD Amendment. Section 4.2, page 4.4, first paragraph, states that, "In conducting your five-year review, you should evaluate the effects of significant changes in standards and assumptions that were used at the time of remedy selection. Changes in the promulgated standards or 'to be considereds' (TBCs) may impact the protectiveness of the remedy. Similarly, you should investigate the effect of significant changes in the risk parameters that were used to support the remedy selection, such as RfDs, cancer potency factors, and exposure pathways of concern." The Air Force will utilize the OSWER guidance, as amended or superseded, in conducting McClellan's five-year reviews protectiveness evaluation and determination.

objectives, the Air Force will prepare and submit a remedial action completion report that will contain an evaluation of the protectiveness of the competed remedy.

The State of California retains its rights and obligations under the McClellan FFA and will not be prejudiced in its role as a party to the FFA and its ability to dispute the conclusion of any five-year review because it is not now invoking the dispute resolution process of the FFA with regard to this ROD amendment.

SECTION 3

Responsiveness Summary

This ROD Amendment was developed in accordance with applicable state and federal laws, regulations, and codes. This includes CERCLA, as amended by SARA, and to the extent practicable, the NCP.

3.1 Proposed Plan

The Air Force prepared and presented a Proposed Plan to the community. This is a public participation requirement of CERCLA.

3.2 Proposed Plan Comment Period and Public Meeting

The Air Force held a 45-day public comment period on the Non-VOC Proposed Plan from November 24 through December 24, 2008. The Air Force presented the Proposed Plan and requested oral and written comments at a public meeting on December 9, 2008. Public Comments and Air Force responses are included in the responsiveness summary located in Appendix A. These activities satisfied the public participation requirements.

3.3 Summary of Comments Received

The Air Force received three comments from two members of the public during the public comment period. Two people commented at the public meeting and no written comments were received during the comment period.

SECTION 4

Works Cited

Air Force Real Property Agency (AFRPA). 2008 (publication pending). *Non-VOC Proposed Plan.* Draft Final.

CH2M HILL. 2008. *Remedial Investigation/Feasibility Study for Non-VOCs in Groundwater.* Final. Prepared for the former McClellan Air Force Base. June.

CH2M HILL. 2007a. *Basewide VOC Groundwater Record of Decision.* Final. Prepared for the former McClellan Air Force Base. August.

CH2M HILL. 2007b. *Site Inspection Findings Report and Remedial Investigation Work Plan for Non-VOCs in Groundwater.* Final. Prepared for the former McClellan Air Force Base. March.

Jacobs Engineering Group, Inc. (Jacobs). 2001. *Operable Unit A Remedial Investigation Characterization Summaries Addenda.* Final. September.

URS. 2009. *Operation and Maintenance Manual, Groundwater Monitoring Program, Groundwater Treatment Plant.* Final. January.

URS. 2005. *Preliminary Assessment for Non-VOCs in Groundwater.* Final. September.

U.S. Environmental Protection Agency (EPA). 1999. *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents.* EPA 540-R-98-031, OSWER 9200.1-23P. July.

Appendix A
Responsiveness Summary

APPENDIX A

Responsiveness Summary

Background of Community Involvement

A proposed plan and a public comment period are key parts of the decision-making process because the Air Force uses community input when making cleanup decisions. The Proposed Plan for the Cleanup of Non-Volatile Organic Compounds (Non-VOCs) in Groundwater for this Record of Decision (ROD) Amendment was available for review during a 45-day public comment period from November 24, 2008, through January 7, 2009. The plan was available for review at the McClellan Information Repository, the North Highlands-Antelope Library, and on the Air Force Real Property Agency (AFRPA) website. The Proposed Plan was also sent in its entirety to the McClellan mailing list (approximately 2,500 names).

In addition, a public meeting was held on December 9, 2008, to explain the Proposed Plan and to solicit comments from the public. A public notice published in the *Sacramento Bee* on November 24, 2008, announced the start of the public comment period and the date of the public meeting. A notice announcing the public meeting was published in the *Rio Linda/Elverta News* on December 5, 2009. The public was encouraged to review the document and provide verbal comments at the meeting or written comments via e-mail or street address delivery at any time during the public comment period.

Summary of Comments Received

The Air Force received three comments from 2 members of the public during the public comment period. Two people commented at the public meeting and no written comments were received during the comment period through 05 January 2009. Specific comments and Air Force responses are provided below.

Comments Received from December 9, 2008, Public Meeting and Air Force Responses

CHUCK YARBROUGH: I just want to make a public comment regarding the extraction wells and the effluent from those extraction wells is now going into Magpie and Don Julio Creeks and to Beaver Pond and so forth.

And I think it's more beneficial to the public to have this continue on into the future rather than using it for industrial purposes on the facility. Because there's several reasons for this, in that that effluent is feeding the creeks that's keeping them running all year round and Beaver Pond full. That the idea here is that it's helping the environment and the community by doing so. Any wells along the way where this runs, it will actually percolate somewhat down in the wells as it meanders down to Steelhead Creek that flows into the American River – American or Sacramento. I believe it's the American River where Steelhead Creek goes. You can look at the maps and tell. But also it helps the environment and it's where it's going now. You don't have to make any modifications or spend any money on doing anything different.

The other thing is it is used by other uses, like agricultural, agricultural use and industrial use, as it flows down Magpie Creek, Don Julio Creek, down to Steelhead Creek and into the American and then the Sacramento River. And different uses take advantage of the water that goes down there. Also keeps water – saltwater intrusion from coming into the Delta.

So, not very much from that. But, I mean, these are things that happened to the water already. It is used. It keeps our creeks flowing all year round instead of just seasonal. And it helps the local wells in the area and passes by. And it increases the flow of the Sacramento-American and Sacramento River during drought years like we're having now. So I think it is very beneficial for this water to flow into our local creeks here on McClellan Air Force Base and off base too, that's everybody. And it also helps the wildlife and so forth that live in these creeks.

So I think it should continue to be that way rather than use it for industrial purposes only on McClellan field itself, because everybody benefits all the way down the river system the way it's being done now currently. And so I would recommend that we continue to use the water the way we are today. Thank you.

Air Force Response: Currently, the groundwater treatment plant discharges approximately 1,600 gallons per minute (gpm) to Magpie Creek, Don Julio, and Beaver Pond. What is being proposed is to take a portion of this flow and provide it to the on-base tenants, for example as a backup water supply for industrial process or for landscape irrigation water. This would result in more water available to the community for their use. To date, no formal request for water use from a tenant has been received by the Air Force.

Regardless, water discharged from the groundwater treatment plant to the creek is expected to be reduced over time as the contaminant plumes are successfully remediated. The flow rate from the extraction wells will be reduced and eventually turned off.

What is proposed is that a portion of the treated water be available to the tenants for use if they provide the conveyance system from the treatment plant to their location. The Air Force can maintain a minimum discharge flow to the creeks during the time period the treatment plant is in operation.

BILL MAYNARD: So, again, my name is Bill Maynard. I'm in support of Alternative 3, get as clean as possible.

Also, I am concerned, though, about what it's doing to our water table. And I am still concerned about that plume that you presented in the 1980s to our neighborhood association that showed the plume going all the way down to Grand Avenue and Astoria Street with them telling us at that time that it was heading a southwest direction deeper into the residential areas and into our wells of the city.

Also stated at the meeting that the wells – people were taken off private wells and connected to the city water system, which is currently using at least three to four wells in the neighborhood that may be affected by this plume.

The tests that the city run, I've been told by city utilities people last week at a neighborhood meeting, they do not test for anything over than the standard things that are required for water quality. So that does not include the heavy metal tests and contaminants that are found on the base. We need that tested and those numbers shown by a non Air Force agency to us.

And, let's see. So I think that's it for now.

Air Force Response: The selected Alternative 2 provides control and cleanup of the non-volatile organic compound (VOC) contaminants in groundwater to the drinking water standard. This is the same standard to which the State of California regulates municipal water purveyors to provide drinking water for residential use. This is the same standard to which the VOCs in groundwater are being cleaned up to.

As mentioned in the proposed plan, the non-VOC plumes are present within the VOC plumes. The VOC plumes are much larger than the non-VOC plumes (see Figure 2-2 of the Non-VOC ROD Amendment) and will take much longer for the VOC contamination to be removed. After extraction well pumping has reduced the non-VOCs to the Alternative 2 cleanup level, in most cases the wells will continue to operate to remove VOCs. This continued operation of extraction wells will result in continued control and cleanup of non-VOCs.

The primary difference between the two alternatives is the monitoring of groundwater wells to track the reduction of non-VOCs to the Alternative 3 cleanup level. Under Alternative 2, monitoring for non-VOCs will be reduced once the Alternative 2 clean up levels are reached.

VOCs concentrations were reported in the 1980s in monitoring wells located southwest of the base. Additional wells were added to monitor the location and concentrations of VOCs in this area. Extraction wells were also installed nearby within the base boundary. Data from these monitoring wells are collected to monitor the effectiveness of the onbase extraction wells in decreasing the VOCs concentrations. The current level of VOCs in these off-base wells is less the VOC cleanup level. No Non-VOC contamination is found in this area.

This area of former VOC concentrations above the cleanup level is in a groundwater restricted use area. Per the VOC ROD, a groundwater use prohibition was created for this area and is enforced by the City of Sacramento. The area included is from the western base boundary to Dry Creek Road and south to I-80.

The water purveyors do collect water samples from their wells for analysis to determine if the water is safe for consumption. The analysis includes both VOCs and non-VOCs. Groundwater samples collected from the nearby water purveyor have not been tested for 1,4-dioxane.

CHUCK YARBROUGH: *Okay. I would just like to add that – my name is Chuck Yarbrough, for the record. I would like to add that I'm backing up my fellow neighbor here. And he just spoke. I would support his Alternative 3 also because it's, what, only $6.6 million more, $600,000 to clean it down to lower levels to protect the environment and the neighbors out there. And if they are concerned for their health and safety, I would be concerned for it too. So I'd like to back up Alternative 3 and encourage you to check out his wells or his neighbor's wells if they are still on wells. So, thank you.*

Air Force Response: The selected Alternative 2 provides control and cleanup of the non-VOC contaminants in groundwater to the drinking water standard. This is the same standard to which the State of California regulates municipal water purveyors to provide drinking water for residential use. This is the same standard to which the VOCs in groundwater are being cleaned up to. The Alternative 3 cleanup level is the water quality objective for hexavalent chromium and 1,4-dioxane as there is not a state or federal public health goal (PHG) or a maximum contaminant level (MCL) established for either. Water

quality objective is not legally enforced but an objective set by the State Regional Water Quality Control Board intended to enhance the water quality. Perchlorate does have a State MCL and PHG, both of which are 6 µg/L. Alternative 2 is the drinking water standard.

As mentioned in the proposed plan, the non-VOC plumes are present within the VOC plumes. The VOC plumes are much larger then the non-VOC plumes (see Figure 2-2 of the Non-VOC ROD) and will take much longer for the VOC contamination to be removed. After extraction well pumping has reduced the non-VOCs to the Alternative 2 cleanup level, in most cases the wells will continue to operate to remove VOCs. This continued operation of extraction wells will result in continued control and cleanup of non-VOCs.

The primary difference between the two alternatives is the monitoring of groundwater wells to track the reduction of non-VOCs to the Alternative 3 cleanup level. Under Alternative 2, monitoring for non-VOCs will be reduced once the Alternative 2 clean up levels are reached.

Comments Submitted in Writing to Air Force Real Property Agency during the 2008/2009 Comment Period and Air Force Responses

No written public comments were received.

Appendix B
Index to the Administrative Record File

APPENDIX B

Index to the Administrative Record File

The Administrative Record index presented below is a supplement to the index provided in the Final VOC Record of Decision (ROD).

TABLE B-1
Administrative Record Index

Document Date	Subject or Title	Author / Corporate Affil.	File Name
01 Sep 2002	Addendum to the Groundwater Monitoring Program Field Sampling Plan for 1,4 Dioxane, Hexavalent Chromium, and Total Metals in Groundwater Monitoring and Extraction Wells.	URS, Corp.	MCCLN_AR_4759.pdf
19 May 2004	Road Map and Preliminary Screening-Level Conceptual Site Model for Non-VOCs in Groundwater.	URS, Corp.	MCCLN_AR_5400.pdf
19 Sep 2005	Preliminary Assessment for Non-VOCs in Groundwater.	URS, Corp.	MCCLN_AR_5936.pdf
08 May 2006	Final Site Inspection Work Plan for Non-VOCs in Groundwater.	CH2M HILL	MCCLN_AR_6021.pdf
17 Nov 2006	Groundwater Monitoring Plan Update.	URS, Corp.	MCCLN_AR_6243.pdf
17 Nov 2006	Draft Evaluation of Metals COPCs and COPIs.	URS, Corp.	Pending
30 Nov 2006	Groundwater Treatment Plant Operations and Maintenance Manual.	URS, Corp.	MCCLN_AR_6139.pdf
01 Mar 2007	Final SI Findings Report and RI Work Plan for Non-VOCs in Groundwater.	CH2M HILL	MCCLN_AR_461.pdf
30 Mar 2007	Draft Multiple Existing CERCLA Sites Radiological RICS Addendum.	Cabrera Services	Pending
22 Jun 2007	Draft Airfield Radiological RICS Addendum.	Cabrera Services	Pending
16 Jul 2007	Groundwater Monitoring Program Quarterly Report, First Quarter 2007.	URS, Corp.	MCCLN_AR_6499.pdf
08 Aug 2007	Final Basewide VOC Groundwater Record of Decision.	AFRPA	MCCLN_AR_6475.pdf
08 Nov 2007	Draft Final Radiological RICS Addendum for Initial Parcel #3.	Cabrera Services	Pending
2007	Groundwater Monitoring Program Quarterly Report, Second Quarter 2007.	URS, Corp.	Pending

TABLE B-1
Administrative Record Index

Document Date	Subject or Title	Author / Corporate Affil.	File Name
2008	Final Radiological Groundwater Field Sampling Plan Addendum – MW-353 and MW-640.	URS, Corp.	Pending
2008	McClellan Air Force Base, Groundwater Treatment Facility Monthly Operations/Status Report with Summary of Data for October, November, December 2007.	URS, Corp.	Pending
04 Jun 2008	Final RI/FS for Non-VOCs in Groundwater. (Appendix D of the RI/FS)	CH2M HILL	Pending
18 Nov 2008	Final Proposed Plan for the Cleanup of Non-Volatile Organic Compounds in Groundwater at the Former McClellan Air Force Base	CH2M HILL	Pending
11 Dec 2008	Final Initial Parcel #3 Feasibility Study.	CH2M HILL	Pending

DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

AUG 2 0 2009

MEMORANDUM FOR Christine Katin
EPA Region IX
75 Hawthorne Street (SFD-8-1)
San Francisco CA 94105

FROM: AFRPA Western Region Execution Center
3411 Olson Street
McClellan CA 95652-1003

SUBJECT: Signature of the Final Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision

1. The Air Force is pleased to submit the Final Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision for signature by Mr. Montgomery.

2. Please return the signed ROD amendment to the Air Force. We will in turn obtain the necessary signature from the State and disseminate the final, signed copies.

3. If you have any questions, please contact Mr. Ken Smarkel at (916) 643-0830 ext. 235.

Philip H Mook Jr

PHILIP H. MOOK, JR.
Senior Representative

Attachment:
Final Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision

Final

Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision

Prepared for

Former McClellan Air Force Base
Air Force Real Property Agency

McClellan, California

July 2009

DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

SEP 16 2009

MEMORANDUM FOR SEE DISTRIBUTION

FROM: AFRPA Western Region Execution Center
3411 Olson Street
McClellan CA 95652-1003

SUBJECT: Signature Page for the Final Non-Volatile Organic Compound (Non-VOC) Amendment to the Basewide VOC Groundwater Record of Decision, (DSR# 1077-6), former McClellan Air Force Base

1. The Air Force is pleased to provide the completed signature page for the Non-Volatile Organic Compound (Non-VOC) Amendment to the Basewide VOC Groundwater Record of Decision (Amendment).

2. Please replace the unsigned page (page 1-5) in the final Non-Volatile Organic Compound (Non-VOC) Amendment to the Basewide VOC Groundwater Record of Decision which was transmitted on 22 July 2009.

3. If you have any questions or concerns, please contact Mr. Steve Mayer at (916) 643-0830, ext. 224.

STEVEN K. MAYER, P.E.
BRAC Environmental Coordinator

Attachment:
Completed signature page for the Non-VOC Amendment to the Basewide VOC Groundwater Record of Decision

DISTRIBUTION LIST

ADDRESS	NUMBER OF COPIES
AFRPA Western Region Execution Center Attn: Administrative Record Mr. Ken Smarkel (Noblis) 3411 Olson Street McClellan CA 95652-1003	 2 1
U.S. Environmental Protection Agency, Region IX Attn: Ms. Christine Katin (SFD-8-1) 75 Hawthorne Street San Francisco CA 94105	1
Department of Toxic Substances Control Attn: Mr. John Harris 8800 Cal Center Drive Sacramento CA 95826-3200	1
Regional Water Quality Control Board Attn: Mr. James Taylor 11020 Sun Center Drive, #200 Rancho Cordova CA 95670-6114	1
TechLaw Inc. Attn: Mr. Rich Howard, P.E. 921 11th Street, Suite 800 Sacramento CA 95814	1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

Date: August 12, 2009

From: Robert Carr
Assistant Regional Counsel

Thru: Lewis Maldonado
Practice Group Leader

To: Dustin Minor
Acting Hazardous Waste Branch Chief

SUBJECT: McClellan AFB Non VOC ROD Amendment

Attached for your review is the Non-VOC Record of Decision Amendment (RODA) for the former McClellan AFB. This RODA is the final CERCLA decision document for non Volatile Organic Compounds (non VOC) contamination in the groundwater at the installation. The RODA expands the scope of the Basewide VOC ROD to address Non-VOC contamination. The RODA addresses contaminants of concern including total chromium, Cr IV 1,4, dioxane and perchlorate. Much of this contamination is already being treated by the existing GW pump and treat system and it is expected that cleanup standards for the non-VOC contamination will be achieved before the VOC contamination is remediated. The RODA establishes cleanup requirements based on State MCLs

The RODA relies on existing ICs selected and documented in the VOC ROD which include restrictions on the extraction of groundwater and protection for the existing monitoring wells and the pump and treat system. The Basewide VOC ROD describes the specific restrictions to be embodied in ICs and includes a detailed description of the implementation monitoring, reporting and enforcement mechanism, including specific language to be inserted in Deeds or other transfer documents. The ROD identifies portions of the State LUC regulations as ARARs.

I recommend that the Office of Regional Counsel concur on this ROD; please indicate your concurrence by signing below. If you have any questions, please call me at 2 3913

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

Lewis Maldonado, Acting for Dustin Minor 8-19-09

Dustin Minor Date
Acting, Hazardous Waste Branch Chief